

WE CLAIM:

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1. An apparatus for processing a television signal, wherein the television signal comprises frames of programs and commercials, the apparatus comprising:
- 5 receiving means for receiving a television signal;
- commercial candidate block detecting means for detecting a commercial candidate block comprising one or more commercial candidate sections in the television signal;
- 10 measuring means for measuring a length of the commercial candidate block;
- judgement means for making a first judgement of whether the length of the commercial candidate block is within a predetermined range of an integral multiple of a standard length; and
- 15 determining means for determining whether the commercial candidate block is a commercial block according to the first judgement.
2. The apparatus according to claim 1, wherein the standard length is 15 seconds.
3. The apparatus according to claim 1, wherein the standard length is 450 frames.
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4. The apparatus according to claim 1, further comprising:
commercial candidate section detecting means for
detecting commercial candidate sections in the television
signal;

5 extracting means for extracting commercial candidate
sections having a substantially predetermined length; and
wherein

the commercial candidate block detecting means
detects commercial candidate blocks based on the extracted
commercial candidate sections.

5. The apparatus according to claim 1, wherein:

the measuring means measures the length of an
intermediate section between commercial candidates;

15 the judgement means makes a second judgement of
whether or not the length of the intermediate section is within
an intermediate section length range; and

the determining means determines whether the
intermediate section is part of a commercial block according to
the second judgement.

6. The apparatus according to claim 2, wherein the
predetermined range is 0.1 second.

25 7. The apparatus according to claim 3, wherein the
predetermined range is 3 frames.

8. The apparatus according to claim 4, wherein the
commercial candidate section detecting means detects

commercial candidate sections based on whether the commercial candidate sections are within a predetermined range of an integral multiple of a standard length.

5 9. The apparatus according to claim 4, wherein:
 the television signal comprises an audio multiplex mode;
 the commercial candidate section detecting means
 comprises audio multiplex mode detecting means for detecting
10 an audio multiplex mode in the television signal; and
 the extracting means extracts a commercial candidate
 section according to the audio multiplex mode detected by the
 audio multiplex mode detecting means.

15 10. The apparatus according to claim 4, wherein:
 the television signal comprises scene changes;
 the commercial candidate section detecting means
 comprises scene change detection means for detecting scene
 changes in the television signal; and
20 the extracting means extracts a commercial candidate
 section according to the scene changes detected by the scene
 change detection means.

25 11. The apparatus according to claim 5, wherein the
 intermediate section length range is 10 seconds.

12. The apparatus according to claim 5, wherein the
intermediate section length range is 300 frames.

13. The apparatus according to claim 8, wherein the standard length is 15 seconds.

14. The apparatus according to claim 8, wherein the standard length is 450 frames.

15. The apparatus according to claim 8, wherein the predetermined range is 1/6 of a second.

16. The apparatus according to claim 8, wherein the predetermined range is 5 frames.

17. An apparatus for processing a television signal, comprising:
signal receiving means for receiving a television signal;
commercial candidate section detecting means for detecting a commercial candidate section in the television signal;
a first measuring means for measuring a length of the commercial candidate section;
a first judgement means for making a first judgement of whether the length of the commercial candidate section is within a first predetermined range of an integral multiple of a standard length;
a second measuring means for measuring the length of an intermediate section between commercial candidate sections;

a second judgement means for making a second judgement of whether the length of the intermediate section is within a second predetermined range; and

commercial block determining means for determining a commercial block of one or more commercial candidate sections according to the first judgement and the second judgement.

18. An apparatus for processing a television signal, comprising:
- signal receiving means for receiving a television signal;
 - commercial extracting means for extracting a commercial based on a reference criterion indicative of a commercial characteristic;
 - alteration detecting means for detecting an alteration of the commercial characteristic; and
 - changing means for changing the reference criterion according to the alteration of the commercial characteristic detected by the alteration detecting means.

19. The apparatus according to claim 18, wherein the alteration detecting means detects the length of a commercial.

20. The apparatus according to claim 18, further comprising reference criterion storing means for storing the reference criterion.

21. The apparatus according to claim 20, wherein the reference criterion storing means comprises a memory.

22. The apparatus according to claim 21, further comprising criterion receiving means for receiving a new reference criterion which is input from an external device, wherein the memory receives the new reference criterion from the criterion receiving means.

23. An apparatus for processing a television signal, wherein the television signal comprises frames of programs and commercials, the apparatus comprising:

a receiver for receiving a television signal;

a first detector for detecting a commercial candidate block comprising one or more commercial candidate sections in the television signal;

a measuring circuit for measuring a length of the commercial candidate block;

a comparator for making a comparison of whether the length of the commercial candidate block is within a predetermined range of an integral multiple of a standard length; and

a second detector for determining whether the commercial candidate block is a commercial block according to the comparison.

24. The apparatus according to claim 23, wherein the standard length is 15 seconds.

25. The apparatus according to claim 23, wherein the standard length is 450 frames.

26. The apparatus according to claim 23, further comprising:

a third detector for detecting commercial candidate sections in the television signal;

an extracting circuit for extracting commercial candidate sections having a substantially predetermined length; and

wherein

the first detector detects commercial candidate blocks based on the extracted commercial candidate sections.

27. The apparatus according to claim 23, wherein:

the measuring circuit measures the length of an intermediate section between commercial candidates;

the comparator makes a second judgement of whether or not the length of the intermediate section is within an intermediate section length range; and

the second detector determines whether the intermediate section is part of a commercial block according to the second judgement.

28. The apparatus according to claim 24, wherein the predetermined range is 0.1 second.

29. The apparatus according to claim 25, wherein the predetermined range is 3 frames.

30. The apparatus according to claim 26, wherein the third detector detects commercial candidate sections based on whether the commercial candidate sections are within a

predetermined range of an integral multiple of a standard length.

31. The apparatus according to claim 26, wherein:
the television signal comprises an audio multiplex mode;
the third detector comprises an audio multiplex mode detector for detecting an audio multiplex mode in the television signal; and

the extracting circuit extracts a commercial candidate section according to the audio multiplex mode detected by the audio multiplex mode detector.

32. The apparatus according to claim 26, wherein:
the television signal comprises scene changes;
the third detector comprises a scene change detector for detecting scene changes in the television signal; and
the extracting circuit extracts a commercial candidate section according to the scene changes detected by the scene change detector.

33. The apparatus according to claim 27, wherein the intermediate section length range is ten seconds.

34. The apparatus according to claim 27, wherein the intermediate section length range is 300 frames.

35. The apparatus according to claim 30, wherein the standard length is 15 seconds.

36. The apparatus according to claim 30, wherein the standard length is 450 frames.

37. The apparatus according to claim 30, wherein the predetermined range is 1/6 of a second.

38. The apparatus according to claim 30, wherein the predetermined range is 5 frames.

39. An apparatus for processing a television signal, comprising:

- a receiver for receiving a television signal;
- a detector for detecting a commercial candidate section in the television signal;
- a timer for measuring a length of the commercial candidate section and for measuring the length of an intermediate section between commercial candidate sections;
- a first comparator for making a first comparison of whether the length of the commercial candidate section is within a first predetermined range of an integral multiple of a standard length;
- a second comparator for making a second comparison of whether the length of the intermediate section is within a second predetermined range; and
- a commercial block detector for detecting a commercial block of one or more commercial candidate sections according to the first comparison and the second comparison.

40. An apparatus for processing a television signal,
comprising:

a receiver for receiving a television signal;

a commercial extracting circuit for extracting a
commercial based on a reference criterion indicative of a
commercial characteristic;

a detector for detecting an alteration of the commercial
characteristic; and

an updating circuit for updating the reference criterion
according to the alteration of the commercial characteristic
detected by the detector.

41. The apparatus according to claim 40, wherein the
detector detects the length of a commercial.

42. The apparatus according to claim 40, further comprising
a memory for storing the reference criterion.

43. The apparatus according to claim 42, further comprising
an input device for receiving a new reference criterion which is
transmitted from an external device, wherein the memory
receives the new reference criterion from the input device.

44. A method of processing information in an information
processing apparatus for detecting commercials included in a
television broadcast, the method comprising:
receiving a television signal;
detecting a commercial candidate block comprising one
or more commercial candidate sections in the television signal;

measuring a length of the commercial candidate block;
making a judgement of whether the length of the
commercial candidate block is within a predetermined range of
an integral multiple of a standard length; and
5 determining whether the commercial candidate block is
a commercial block according to the judgement.

45. The method according to claim 44, wherein the
standard length is 15 seconds.

46. The method according to claim 44, wherein the
standard length is 450 frames.

47. The method according to claim 44, further comprising:
a commercial candidate section detecting step of
detecting commercial candidate sections in the television
signal;

an extracting step of extracting commercial candidate
sections having a substantially predetermined length; and
20 wherein

the commercial candidate block detecting step
comprises detecting commercial candidate blocks based on the
extracted commercial candidate sections.

48. The method according to claim 44, wherein:
the measuring step comprises measuring the length of
an intermediate section between commercial candidates;

the judgement step comprises making a second judgement of whether or not the length of the intermediate section is within an intermediate section length range; and

the determining step comprises determining whether the intermediate section is part of a commercial block according to the second judgement.

49. The method according to claim 45, wherein the predetermined range is 0.1 second.

50. The method according to claim 46, wherein the predetermined range is 3 frames.

51. The method according to claim 47, wherein the commercial candidate section detecting step comprises detecting commercial candidate sections based on whether the commercial candidate sections are within a predetermined range of an integral multiple of a standard length.

52. The method according to claim 47, wherein:
the television signal comprises an audio multiplex mode;
the commercial candidate section detecting step comprises an audio multiplex mode detecting step of detecting an audio multiplex mode in the television signal; and
the extracting step comprises extracting a commercial candidate section according to the audio multiplex mode detected in the audio multiplex mode detecting step.

53. The method according to claim 47, wherein:
the television signal comprises scene changes;
the commercial candidate section detecting step
comprises a scene change detection step of detecting scene
changes in the television signal; and
the extracting step comprises extracting a commercial
candidate section according to the scene changes detected in
the scene change detection step.
54. The method according to claim 48, wherein the
intermediate section length range is 10 seconds.
55. The method according to claim 48, wherein the
intermediate section length range is 300 frames.
56. The method according to claim 51, wherein the
standard length is 15 seconds.
57. The method according to claim 51, wherein the
standard length is 450 frames.
58. The method according to claim 51, wherein the
predetermined range is 1/6 of a second.
59. The method according to claim 51, wherein the
predetermined range is 5 frames.

60. A method for processing a television signal, comprising:
a signal receiving step of receiving a television signal;
a commercial candidate section detecting step of
detecting a commercial candidate section in the television
signal;

a first measuring step of measuring a length of the
commercial candidate section;

a first judgement step of making a first judgement of
whether the length of the commercial candidate section is
within a first predetermined range of an integral multiple of a
standard length;

a second measuring step of measuring the length of an
intermediate section between commercial candidate sections;

a second judgement step of making a second judgement
of whether the length of the intermediate section is within a
second predetermined range; and

a commercial block determining step of determining a
commercial block of one or more commercial candidate
sections according to the first judgement and the second
judgement.

61. A method for processing a television signal, comprising:
a signal receiving step of receiving a television signal;
a commercial extracting step of extracting a commercial
based on a reference criterion indicative of a commercial
characteristic;

an alteration detecting step of detecting an alteration of
the commercial characteristic; and

a changing step of changing the reference criterion
according to the alteration of the commercial characteristic
detected in the alteration detecting step.

62. The method according to claim 61, wherein the
alteration detecting step comprises detecting the length of a
commercial.

63. The method according to claim 61, further comprising a
reference criterion storing step of storing the reference
criterion.

64. The method according to claim 63, wherein the
reference criterion storing step comprises storing the reference
criterion in a memory.

65. The method according to claim 64, further comprising:
a criterion receiving step of receiving a new reference
criterion which is input from an external device; and
a transmission step of transmitting the new reference
criterion to the memory.

66. A provision medium for providing a program which is readable by a computer to control an apparatus to execute a detection routine for detecting commercials included in a television broadcast, the detection routine comprising the steps of:

receiving a television signal;

detecting a commercial candidate block comprising one or more commercial candidate sections in the television signal;

measuring a length of the commercial candidate block;

making a judgement of whether the length of the commercial candidate block is within a predetermined range of an integral multiple of a standard length; and

determining whether the commercial candidate block is a commercial block according to the judgement.

67. The provision medium according to claim 66, wherein the standard length is 15 seconds.

68. The provision medium according to claim 66, wherein the standard length is 450 frames.

69. The provision medium according to claim 66, wherein the detection routine further comprises:

a commercial candidate section detecting step of detecting commercial candidate sections in the television signal;

an extracting step of extracting commercial candidate sections having a substantially predetermined length; and wherein

the commercial candidate block detecting step comprises detecting commercial candidate blocks based on the extracted commercial candidate sections.

5 70. The provision medium according to claim 66, wherein:
the measuring step comprises measuring the length of
an intermediate section between commercial candidates;
the judgement step comprises making a second
10 judgement of whether or not the length of the intermediate
section is within an intermediate section length range; and
the determining step comprises determining whether the
intermediate section is part of a commercial block according to
the second judgement.

15 71. The provision medium according to claim 67, wherein
the predetermined range is 0.1 second.

20 72. The provision medium according to claim 68, wherein
the predetermined range is 3 frames.

25 73. The provision medium according to claim 69, wherein
the commercial candidate section detecting step comprises
detecting commercial candidate sections based on whether the
commercial candidate sections are within a predetermined
range of an integral multiple of a standard length.

74. The provision medium according to claim 69, wherein:
the television signal comprises an audio multiplex mode;

the commercial candidate section detecting step comprises an audio multiplex mode detecting step of detecting an audio multiplex mode in the television signal; and

the extracting step comprises extracting a commercial candidate section according to the audio multiplex mode detected in the audio multiplex mode detecting step.

75. The provision medium according to claim 69, wherein:

the television signal comprises scene changes;

the commercial candidate section detecting step comprises a scene change detection step of detecting scene changes in the television signal; and

the extracting step comprises extracting a commercial candidate section according to the scene changes detected in the scene change detection step.

76. The provision medium according to claim 70, wherein the intermediate section length range is 10 seconds.

77. The provision medium according to claim 70, wherein the intermediate section length range is 300 frames.

78. The provision medium according to claim 73, wherein the standard length is 15 seconds.

79. The provision medium according to claim 73, wherein the standard length is 450 frames.

80. The provision medium according to claim 73, wherein the predetermined range is 1/6 of a second.

81. The provision medium according to claim 73, wherein the predetermined range is 5 frames.

82. A provision medium for providing a program which is readable by a computer to control an apparatus to execute a detection routine for detecting commercials included in a television broadcast, the detection routine comprising:

a signal receiving step of receiving a television signal;

a commercial candidate detecting step of detecting a commercial candidate section in the television signal;

a first measuring step of measuring a length of the commercial candidate section;

a first judgement step of making a first judgement of whether the length of the commercial candidate section is within a first predetermined range of an integral multiple of a standard length;

a second measuring step of measuring the length of an intermediate section between commercial candidate sections;

a second judgement step of making a second judgement of whether the length of the intermediate section is within a second predetermined range; and

a commercial block determining step of determining a commercial block of one or more commercial candidate sections according to the first judgement and the second judgement.

83. A provision medium for providing a program which is readable by a computer to control an apparatus to execute a detection routine for detecting commercials included in a television broadcast, the detection routine comprising:

- 5 a signal receiving step of receiving a television signal;
 a commercial extracting step of extracting a commercial based on a reference criterion indicative of a commercial characteristic;
 an alteration detecting step of detecting an alteration of the commercial characteristic; and
10 a changing step of changing the reference criterion according to the alteration of the commercial characteristic detected in the alteration detecting step.

15 84. The provision medium according to claim 83, wherein the alteration detecting step comprises detecting the length of a commercial.

20 85. The provision medium according to claim 83, wherein the detection routine further comprises a reference criterion storing step of storing the reference criterion.

25 86. The provision medium according to claim 85, wherein the reference criterion storing step comprises storing the reference criterion in a memory.

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~~a transmission step of transmitting the new reference criterion to the memory.~~